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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,905	09/22/2006	Taichi Akiba	046262-0140	5810

22428 7590 02/05/2010
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EXAMINER

DANIELSEN, NATHAN ANDREW

ART UNIT	PAPER NUMBER
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2627

MAIL DATE	DELIVERY MODE
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02/05/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/593,905	Applicant(s) AKIBA, TAICHI	
	Examiner Nathan Danielsen	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9, 10 and 12-16 is/are rejected.
- 7) ☒ Claim(s) 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>09/22/06 & 08/06/09</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

1. Claims 9-16 are pending. Claims 1-8 have been canceled and claims 9-16 have been added in applicant's preliminary amendment filed 22 September 2006.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 9, 10, and 12-16 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamashita (International Patent Application Publication WO 2004/066288, as cited using English equivalent US Patent Application Publication 2005/0162999).

Regarding claims 9 and 16, Yamashita discloses an optical pickup device (and associated method) configured to any one of read data from and write data on an optical recording medium by using an objective lens (¶ 44), the optical pickup device comprising:

a shape-information obtaining unit that obtains shape information indicative of shape of the optical recording medium in a direction perpendicular to a plane of the optical recording medium (element 36 in figure 4 and ¶s 51-54),

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wherein the shape-information obtaining unit obtains the shape information before data is read from or written on the optical recording medium (note the order of the operations performed in steps S1, S2, and S4 in figure 13 and ¶s 72 and 73);

a limit setting unit that sets a plurality of distance limits corresponding to each of a plurality of positions on the optical recording medium based on the shape information obtained by the shape-information obtaining unit (element 36 in figure 4 performing step S4 in figure 15 and ¶ 77); and

a controlling unit that provides a control so that a relative distance between the objective lens and the optical recording medium is not less than a distance limit corresponding to a current position of the objective lens on the optical recording medium (element 40 in figure 4 and ¶ 51 performing the method of figure 17, which is described in ¶s 80 and 81).

Regarding claim 10, Yamashita discloses everything claimed, as applied to claim 9. Additionally, Yamashita further discloses where the optical pickup device further comprises an actuator that holds the objective lens and moves the objective lens on the optical recording medium (element 16 in figure 3 and ¶ 49), wherein the controlling unit varies a drive current applied to the actuator to provide the control (¶s 80 and 81).

Regarding claim 12, Yamashita discloses everything claimed, as applied to claim 9. Additionally, Yamashita discloses where the optical pickup device further comprises:

an actuator that holds the objective lens and moves the objective lens on the optical recording medium (element 16 in figure 3 and ¶ 49);

a signal detecting unit that detects a focus error signal produced when the objective lens is moved in the direction perpendicular to the plane of the optical recording medium (elements 146 and 148 in figure 2 and ¶ 46); and

a drive-current detecting unit that detects a drive current currently applied to the actuator (element 36 in figure 4, which is part of element 115 in figure 3, and ¶ 51, lines 39-45; where, although element 36 does not directly detect the current flowing through the focus actuator's coil(s), element 36 detects/calculates the current flowing through the actuator's

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coil(s) based on a digital signal which is converted to an analogue signal E3 and is subsequently input to element 154 to provide the power necessary to move the objective lens (see ¶ 50)),

wherein the shape-information obtaining unit obtains the shape information based on the focus error signal detected by the signal detecting unit and the drive current detected by the drive-current detecting unit (element 36 in figure 4 and ¶ 51; where the focus error signal is output from element 148 in figure 3 as signal E1 in figure 4 (see ¶ 50) and where the detected drive current is itself based on the focus error signal (see ¶ 50)).

Regarding claim 13, Yamashita discloses everything claimed, as applied to claim 12.

Additionally, Yamashita discloses where the limit setting unit sets a distance limit corresponding to a first position based on a first drive current necessary to move the objective lens from a current position of the objective lens to a second position at which the focus error signal is equal to zero (reference current in ¶s 52 and 77), and on a second drive current necessary to move the objective lens from the second position to the first position ("one quarter of the surface wobbling quantity" in ¶ 77).

Regarding claim 14, Yamashita discloses everything claimed, as applied to claim 9. Additionally, Yamashita discloses where the optical pickup device further comprises:

an actuator that holds the objective lens and moves the objective lens on the optical recording medium (element 16 in figure 3 and ¶ 49);

a signal detecting unit that detects a focus error signal produced when the objective lens is moved in the direction perpendicular to the plane of the optical recording medium (elements 146 and 148 in figure 2 and ¶ 46); and

a distance measuring unit that measures a focus distance indicative of a relative distance of the objective lens with respect to the actuator (element 36 in figure 4, which is part of element 115 in figure 3, and ¶ 51, lines 39-45; where ¶ 20, in combination with ¶ 77, indicate that the amplitudes/amounts of focusing currents directly correspond to focus/relative distances such that the measurement of a particular focusing current is essentially a distance measurement),

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wherein the shape-information obtaining unit obtains the shape information based on the focus error signal detected by the signal detecting unit and the focus distance measured by the distance measuring unit (element 36 in figure 4 and ¶ 51; where the focus error signal is output from element 148 in figure 3 as signal E1 in figure 4 (see ¶ 50) and where the detected drive current is itself based on the focus error signal (see ¶ 50)).

Regarding claim 15, Yamashita discloses everything claimed, as applied to claim 14.

Additionally, Yamashita discloses where the limit setting unit sets a distance limit based on a focus distance at a first position where the focus error signal is equal to zero and an object distance at the first position (reference current in ¶s 52 and 77; where ¶ 20, in combination with ¶ 77, indicate that the amplitudes/amounts of focusing currents directly correspond to focus/relative distances such that the measurement of a particular focusing current is essentially a distance measurement), wherein the object distance is a distance between the objective lens and a surface of the optical recording medium ("one quarter of the surface wobbling quantity" in ¶ 77; where ¶ 20, in combination with ¶ 77, indicate that the amplitudes/amounts of focusing currents directly correspond to focus/relative distances such that the measurement of a particular focusing current is essentially a distance measurement).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 9, 10, 12, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohshima et al (US Patent 4,710,908; hereinafter Ohshima), in view of Tsutsui et al (US Patent 6,246,647; hereinafter Tsutsui).

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Regarding claims 9 and 16, Oshima discloses an optical pickup device (and associated method) configured to any one of read data from and write data on an optical recording medium by using an objective lens (abstract), the optical pickup device comprising:

a shape-information obtaining unit that obtains shape information indicative of shape of the optical recording medium in a direction perpendicular to a plane of the optical recording medium (element 18 in figure 2 performing the functions in col. 3, line 37 through col. 4, line 30),

wherein the shape-information obtaining unit obtains the shape information before data is read from or written on the optical recording medium (col. 4, lines 54-59).

However, Ohshima fails to disclose where the optical pickup device further comprises a limit setting unit and a controlling unit.

In the same field of endeavor, Tsutsui discloses where the optical pickup device further comprises:

a limit setting unit that sets a plurality of distance limits corresponding to each of a plurality of positions on the optical recording medium based on the shape information obtained by the shape-information obtaining unit (implied in col. 12, line 38 through col. 12, line 23); and

a controlling unit that provides a control so that a relative distance between the objective lens and the optical recording medium is not less than a distance limit corresponding to a current position of the objective lens on the optical recording medium (col. 12, line 38 through col. 12, line 23 in combination with col. 10, line 64 through col. 11, line 27).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus of Ohshima, and the functionality thereof, with the apparatus of Tsutsui, and the functionality thereof, for the purpose of preventing an objective lens from colliding with an optical disc (col. 4, lines 35-39).

Regarding claim 10, Ohshima, in view of Tsutsui, discloses everything claimed, as applied to claim 9. Additionally, Ohshima discloses where the optical pickup device further comprises an actuator

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that holds the objective lens and moves the objective lens on the optical recording medium (element 24 in figure 2). However, Ohshima fails to disclose where the controlling unit varies a drive current applied to the actuator to provide the control.

In the same field of endeavor, Tsutsui discloses where the controlling unit varies a drive current applied to the actuator to provide the control (inherent in the biaxial actuator when the limit voltage is applied, as found in col. 12, line 38 through col. 12, line 23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus of Ohshima, and the functionality thereof, with the apparatus of Tsutsui, and the functionality thereof, for the purpose of preventing an objective lens from colliding with an optical disc (col. 4, lines 35-39).

Regarding claim 12, Ohshima, in view of Tsutsui, discloses everything claimed, as applied to claim 9. Additionally, Ohshima discloses where the optical pickup device further comprises:

an actuator that holds the objective lens and moves the objective lens on the optical recording medium (element 24 in figure 2);

a signal detecting unit that detects a focus error signal produced when the objective lens is moved in the direction perpendicular to the plane of the optical recording medium (element 11 in figure 2 and col. 3, lines 15-21); and

a drive-current detecting unit that detects a drive current currently applied to the actuator (element 15 in figure 2 and col. 3, lines 47-63),

wherein the shape-information obtaining unit obtains the shape information based on the focus error signal detected by the signal detecting unit and the drive current detected by the drive-current detecting unit (col. 3, line 37 through col. 4, line 30; where element 15 detects a current which is based on a focus error signal which drives the objective lens and focus actuator to “always follow the focusing conditions to the warp and the surface deflection of the disc” (see col. 3, lines 15-28) and where “always following the focusing conditions to the warp and the surface deflection of the disc” is interpreted to mean

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always maintaining a focusing position at a focusing zero-cross position, as suggested by col. 3, lines 15-21).

Regarding claim 14, Ohshima, in view of Tsutsui, discloses everything claimed, as applied to claim 9. Additionally, Ohshima discloses where the optical pickup device further comprises:

an actuator that holds the objective lens and moves the objective lens on the optical recording medium (element 24 in figure 2);

a signal detecting unit that detects a focus error signal produced when the objective lens is moved in the direction perpendicular to the plane of the optical recording medium (element 11 in figure 2 and col. 3, lines 15-21); and

a distance measuring unit that measures a focus distance indicative of a relative distance of the objective lens with respect to the actuator (element 18 in figure 2 and col. 3, lines 37 through col. 4, line 30; where X_{ij} are calculated distances),

wherein the shape-information obtaining unit obtains the shape information based on the focus error signal detected by the signal detecting unit and the focus distance measured by the distance measuring unit (col. 3, line 37 through col. 4, line 30; where element 18 calculates distance which are based on focus error signals which drive the objective lens and focus actuator to “always follow the focusing conditions to the warp and the surface deflection of the disc” (see col. 3, lines 15-28) and where “always following the focusing conditions to the warp and the surface deflection of the disc” is interpreted to mean always maintaining a focusing position at a focusing zero-cross position, as suggested by col. 3, lines 15-21).

Allowable Subject Matter

8. Claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, either alone or in combination, fails to each or fairly suggest, in claim 11, where “the optical

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pickup device according further comprises a stopper member capable of moving in the direction perpendicular to the plane of the optical recording medium, and abutting the objective lens, wherein the controlling unit controls the position of the stopper member to provide the control", in combination with all the limitations of the of claim from which it depends.

Relevant Prior Art

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
 - a. Makino et al (US Patent 6,857,125) disclose multiple embodiments of an apparatus having a stopper member abutting or adjacent to an objective lens which moves when the objective lens moves due to its permanent arrangement with regard to the objective lens. However, Makino et al do not disclose where the stopper is controlled such that a relative distance between the objective lens and the optical recording medium is not less than one of a plurality of distance limits, which correspond to each of a plurality of positions on the optical recording medium based on the shape information obtained by the shape-information obtaining unit, corresponding to a current position of the objective lens on the optical recording medium.

Closing Remarks/Comments

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan Danielsen whose telephone number is (571)272-4248. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:00 PM Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nathan Danielsen/
Examiner, Art Unit 2627
01/26/2010